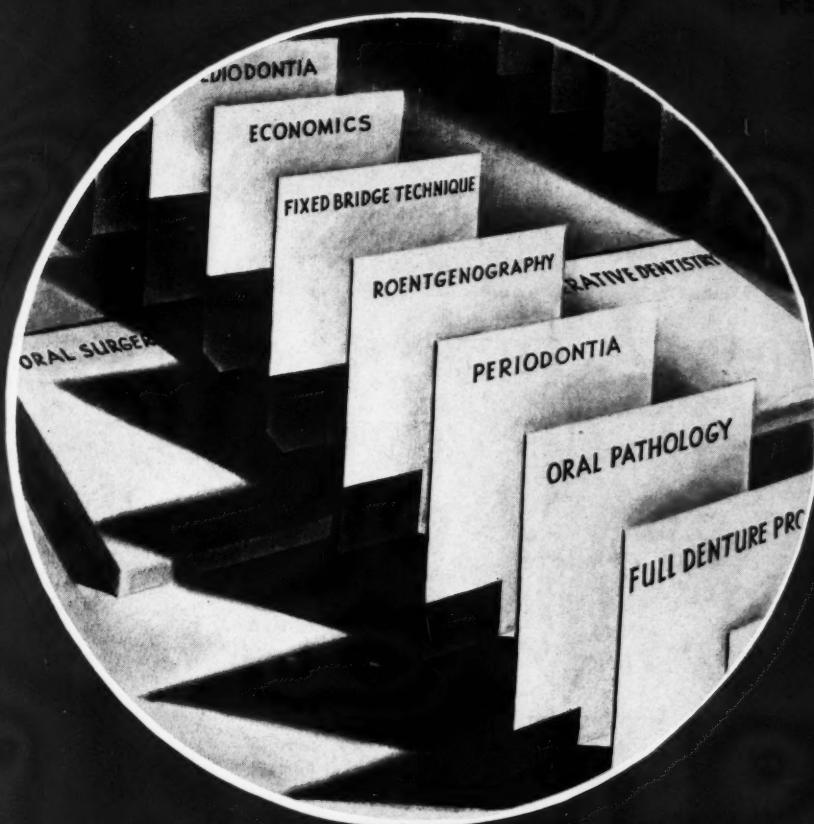


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Vol. 41 No. 6



DENTAL CARIES IN CHILDREN WILL BE CONQUERED

Recent evidence points clearly to the conclusion that the ravages of dental caries in children can be brought close to the zero point by right measures of prevention.

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The DENTAL DIGEST



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June, 1935

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EXTENSIVE PROSTHETIC RESTORATIONS

JEROME M. SCHWEITZER, B.S., D.D.S.

New York

AFTER many years of observing poor dentitions resulting almost entirely from failure to replace missing teeth, more particularly when the extractions have been made at an early age, I have learned that by thorough study and application of scientific principles, a great deal can be accomplished toward restoring these apparently irreparable occlusions.

When the opportunity is present, I usually employ fixed bridges. I prefer as abutments cast or three-quarter crowns on the molars (depending on the amount that shows); three-quarter crowns on the bicuspids; and pinlays on the centrals, laterals, and cuspids. Whenever possible, I have porcelain resting against the gum tissue in the pontic teeth, although sometimes, in the mandible, this is not practicable esthetically.

For the larger restorations when many teeth are missing, I use removable bridges, palatal bars or plates. What form of removable bridgework I choose depends on the abutments available, and on whether it is to function primarily as a tooth or tissue supporter.

Anteriorly, I frequently restore with porcelain bridges, using thimbles on the abutments, over which the jacket crowns are baked.

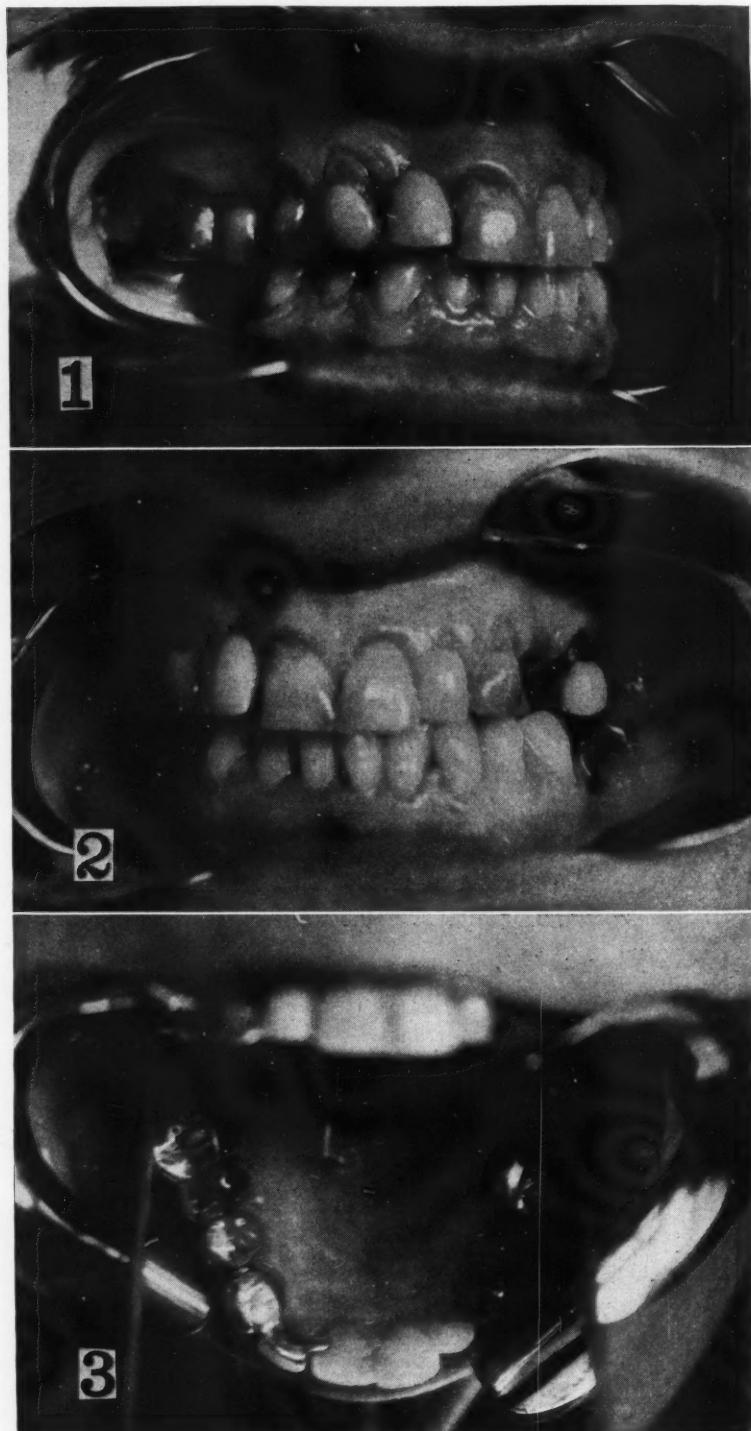
In raising bites, it has been my observation that the difficulty is in direct proportion to the amount that one attempts to raise. For this reason, I would say that it is hazardous in most cases to raise the bite too much. When the bite is rather close, I give myself more room by taking away some of the alveolar bone.

It is advisable to take numerous models and show the progress in all cases.

Fig. 1—Right side of mouth before work was started, showing deep cervical cavities on the anterior teeth.

Fig. 2—Left side of mouth before work was started, showing the separation taking place between the right lateral dummy and the central incisor.

Fig. 3—Palatal view of the original maxilla, taken with a mirror.



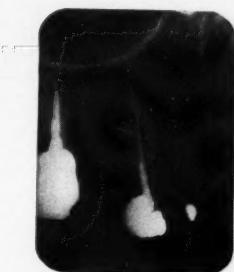


Fig. 4—The original roentgenograms of the case.

Fig. 5—A, Models of the left side before work was begun.
B, Models of left side at completion, showing plumbers.

Fig. 6—A, Original models of the right side. B, Final models of the right side.

Fig. 7—A, Occlusal view of original models. B, Occlusal view of working model (upper) after extractions, showing jacket crown preparations. C, Occlusal view of upper working model, showing two cast crowns in position and the jacket crowns cemented. D, Occlusal view of models of completed case, showing the palatal bar case with plumbers and the lower bridges in position.

Fig. 8—The palatal bar case.

Fig. 9—A closeup of the patient's mouth with all the restorations in position.

Fig. 10—Natural, pleasant appearance of patient at completion of case.



8



9



10



REPORT OF CASE

In the case described the first procedure was to take study models. The customary series of roentgenograms revealed that the upper right first molar, first and second bicuspids, and the upper left second bicuspid were infected (Fig. 4).

The infected teeth were removed; the alveolar ridge was trimmed on the right side and sutured. I have found that when this procedure is followed the healing is quicker and no bony projections remain to interfere with the appliances.

The upper right cuspid carried a lateral dummy (Fig. 3). On removing this bridge there remained in the maxilla, the left and right second molars, the right cuspid and central, and the left central, lateral, and cuspid. All these teeth except the left cuspid were vital; the root of this cuspid suggested infection (Fig. 4). The patient insisted on its retention, however, and since there was no evidence of systemic involvement, I decided that the tooth would be useful as an abutment.

It has been my experience that suc-

545 West End Avenue.

cess in this work is dependent largely on a correct sliding occlusion with little or no cusp interference. Fortunately the posterior occlusion was good in this instance, and my only difficulty with the bite was in the right cuspid region.

In order to produce the desired effect in this mouth a palatal bar was decided on to restore the posterior teeth, and jacket crowns anteriorly, a porcelain bridge being used on the right side from the cuspid to the central.

When clasps rest on the natural teeth in the second and third molar region, the inability of the patient to keep these teeth clean frequently causes erosion, so that the life of the tooth is lengthened if it is covered. Since it was my intention to use a clasp palatal bar, I was afraid of such a contingency, and accordingly prepared the molars, which were filled for cast crowns; deep lug seats were cut in them.

The left cuspid was then prepared for a jacket by building up an artificial gold stump. With the right cuspid and right central serving as right and left abut-

ments, respectively, for the porcelain bridge, an artificial stump was soldered to both copings, and three individual jacket crowns were cemented on them. A fifth jacket was prepared for the left central. The porcelain bridge, together with the left central and cuspid jackets and the patient's own left lateral, which I had decided not to jacket for esthetic reasons, gave a completely natural appearance (Figs. 9 and 10).

In constructing the upper gold bridge, extensive Aldenol plumbums were added on both sides (Figs. 8 and 9) to fill out the patient's cheeks, which had sunken considerably.

A fixed inlay bridge, in which the tooth was attached to the molar inlay with a lock-lug in the bicuspid, was constructed to replace the missing right first molar in the mandible, and another of the same type to restore the left first molar (Fig. 7, D).

This case was completed with a result that is practical, hygienic, and esthetic; the former condition of the mouth was improved considerably.

LETTERS TO THE EDITOR

A PROPOSED POSTGRADUATE COURSE IN ORAL SURGERY¹

In answer to the many inquiries regarding the proposed postgraduate course in oral surgery at the Cook County School of Dentistry, I believe the following information will interest your readers:

Our first course will be diagnostic in character, because, apparently, the dentist himself feels the imperative need to increase his medical and surgical background.

The decision to do surgery must always have positive indications or contraindications. The indications and "counter" indications must take into consideration the patient's physical condition. This means to study pathologic conditions in relation to systemic observations. Merely to arrive at a conclusion to operate on the basis of local manifestations is inadequate. A proper background of medical experience is essential to any decision to do surgery.

It is our plan to provide the opportunity to teach oral surgical technique to those who have qualified themselves properly.

The response to the proposed course in

¹Schaefer, J. E.: A Proposed Postgraduate Course in Oral Surgery, DENTAL DIGEST, 41:112 (April) 1935.

oral surgery has been so encouraging that we have prepared a folder, giving complete details, to send to all those who have inquired about the course.

—JOSEPH E. SCHAEFER, M.D., D.D.S., Chicago.

ULTRAVIOLET RAYS IN DENTISTRY

It seems to me that those who use ultraviolet irradiations as a mode of therapy in England must be using the type of quartz lamps that were being made in this country about fifteen years ago; otherwise, Doctor William Dunn could never have made certain statements in his article,¹ published in February, 1935.

To quote Doctor Dunn, "... the vapor-of-mercury lamp emits together with ultraviolet rays, radiations of a violently caustic nature, so that the lamp must be used with extreme care and for brief sittings." No doubt Doctor Dunn is thinking of a lamp that emits a high percentage of infra-red with the ultraviolet rays. This would give the patient a severe burn, if the exposure were prolonged. There are lamps manufactured today, however, in which the amount of infra-red emitted is negligible. I have been using the "Cold Quartz" lamp for more

¹Dunn, William: Ultraviolet Rays in Dentistry, DENTAL DIGEST, 41:44, February, 1935.

than three years, and have given treatments which have lasted for more than twenty minutes, when treating the entire mouth for pyorrhea. During this period I have used the lamp thousands of times, and not once has the patient returned with a report of any discomfort.

To quote Doctor Dunn again: "Scaldings by vapor-of-mercury irradiations are frequent, and devastating effects on tissues, especially in children, have been reported." These cases were reported when ultraviolet therapy was in its infancy. The quartz lamp as manufactured today can be handled by a novice, without the least injurious effect.

Doctor Dunn rather confuses the issue when he says: "... since quartz cannot allow the shorter rays (below 1500 Å), and the shorter rays are therapeutically more useful ones..." Doctors Albert Bachem and C. I. Reed, in their report of an investigation carried out at the University of Illinois concluded that the most beneficial effects in ultraviolet therapy are obtained from rays in the region of 2500 Å.

Quartz lamps are accepted by the American Medical Association and the American Congress of Physical Therapy as being proficient in ultraviolet therapy.

—A. E. WEINSTEIN, B.S., D.D.S., N. Y.

INFECTED SOCKETS

WILLIAM X. BLACKBURN, D.D.S.

Fort Williams, Ontario, Canada

BY FAR the greatest cause of postextraction pain is the infection of the socket. Textbooks on surgery divide tooth extraction wounds into two classes: (1) incised or clean cut, and (2) lacerated or contused. Both classes may become complicated by infection. Infection may be present before operation, by gaining access to the periapical tissues by way of the root canal or periodontium; it may be introduced at the time of the operation; or infection may occur postoperatively.

SYMPTOMS

The symptoms of the infected socket are well known. The onset of pain is usually about forty-eight hours or later after the extraction. It varies in all degrees of intensity, but is always continuous, even to keeping the patient awake at night. The pain is reflected all over the face and may extend to the ear and head. On examination the socket exhibits no evidence of healing; a swab introduced into it, when withdrawn will be covered with a dirty brown, foul-smelling mucous coating. If the patient has been suffering for some time, he will be haggard from pain, loss of appetite and loss of sleep. He has usually had an overdose of anodynes.

TREATMENT

The treatment of infected sockets is based on the underlying pathology and applied physiology. The cause is an infection of the alveolar process forming the socket. The immediate pain is due to an infection of the process nerves (neuritis). To correct this condition the surface bacteria must be destroyed and the tissue's fluids and cells must combat the more deeply penetrated organisms. Wright's physiologic treatment of wounds and the applied technique of the University Clinic of Vienna are the methods employed.

When any part of the body is injured, the process of repair instantly begins. The tissues in the immediate neighborhood of the wound are in a state of lowered vitality, the blood in the divided vessels coagulates up to the level of the nearest branch which remains patent. The surfaces of the wound and the interstices of the tis-

sues become filled with lymph and blood which clots. The first stage in the process of repair consists in an intense invasion of the blood clot, with leukocytes which are the scavengers, digesting and absorbing the blood clot itself. The tissues are bathed in a free exudation of serum from the vessels in which the nutrient to the part and antibodies to combat infection are present.

According to Carless and Rose,¹ the following represent the chief means of cure of an infection:

1. The lymph, when fresh, has definite antibacterial properties, and also considerable antityptic powers; the latter increases rapidly in an infected patient, but is lost if the lymph becomes stale. *The antityptic power is produced by an elaboration of the living body cells, which set free into the lymph fluid substances that suspend the action of ferment.*

2. The leukocytes with their phagocytic powers, bring to an end bacterial activity, and thereby encourage reparative changes.

3. The tissues, when once the bacteria are seriously weakened, assert their superiority, and rapidly give evidence of their natural tendency to repair.

4. Mechanical cleaning is an additional aid; that is, all wounds showing laceration and contusion should have the margins excised to tissues that bleed well.

5. In infected wounds it is desirable to provoke a serum douche from within to overcome the undermining influences and to stimulate curative ones.

To this end, Wright² advised the use of a hypertonic solution. It encourages lymph drainage of the tissues, and thereby, not only removes the stale lymph, and replaces it with fresh active lymph, but also restores the vascular supply of the tissues by modifying the lymph bound condition of the parts. It also limits leukocytic emigration, and reduces the amount of pus secreted. It disintegrates leukocytes with which it is brought into contact, and sets free a limited amount of trypsin which can act on

the sloughs and loosen them by erosive digestion. This power, however, is limited by the antityptic influence of healthy lymph.

The method of action of hypertonic solutions has been greatly discussed in recent years. According to Wright, the action is by the process of osmosis. The strong asperating action of salt also doubtless provokes a marked stream of lymph from within the wound.

TECHNIQUE

1. The socket is thoroughly irrigated with a warm hypertonic salt solution, from 5 to 10 per cent.

2. The field of operation is next blocked off with cotton rolls, and dried with warm air.

3. A sterile gauze swab soaked in a solution of equal parts of Churchill's iodine and glycerin, is inserted into the socket and allowed to flood the surrounding tissues. (Absorbent cotton is not used for swabs on account of the loose ends adhering to the socket walls, and tending to cause irritation.) The iodine solution is for the purpose of destroying the surface bacteria.

4. Loose, sloughing or necrotic gum tissue is now excised, and the incision carried to healthy tissue that bleeds well.

5. The more deeply penetrated bacteria are next attacked by inducing a flow of lymph with the hypertonic salt solution.

6. It will readily be seen that a salt solution cannot be kept in constant contact with the socket walls; therefore a salt pack is employed. Ordinary salt crystals are introduced into the socket with a spatula until it is three-fourths filled. Iodoform gauze lightly dipped into a solution of equal parts of guaiacol and glycerin is placed over this. The iodoform is a splendid deodorant and the guaiacol an analgesic. By such procedure the fluids of the mouth will keep a hypertonic salt solution constantly in touch with the tissues of the socket.

Instead of using salt crystals one may obtain sodium chloride tablets and break them into small pieces. Better still, if the druggist has a

(Continued on page 200)

¹ Carless and Rose: Surgery.

² Wright, Sir Almroth: Wound Treatment; Applied Physiology.

THE INSERTION OF A FIXED BRIDGE IMMEDIATELY AFTER EXTRACTION

EDWARD WOLFSON, D.D.S.

Jersey City, New Jersey

FREQUENTLY a patient is reluctant to permit the removal of one or more anterior teeth because of the embarrassment occasioned by toothlessness.

A great deal has been written about immediate denture service, but I have been unable to find very much in the dental literature on the subject of immediate fixed bridgework.

The patient in the case to be described presented with the right maxillary central and lateral incisors considerably loosened by excessive trauma, and the condition was further complicated by the presence of periodontal abscesses, which at times became acute. Considerable pus could be expressed by pressure on the labial mucous membrane. Extraction was indicated and it was decided to construct the bridge before removal of the teeth.

Three-quarter crowns were constructed for the left central incisor and right cuspid to act as abutments. The indirect-direct method was used.

TECHNIQUE

1. With the castings in position on the abutment teeth, a correct shade is taken. Since the gold castings will naturally darken the abutment teeth somewhat, it is advisable to allow for this by experimenting with various colored cements, using water as a medium, to bring out the natural color. The shade for the artificial teeth should be the same as the teeth they will replace.

2. A plaster impression is taken. It is advisable to carry the impression as far back as the second bicuspid or first molar. This is done to insure interlocking of the cusps for the proper bite relation. A corresponding impression of the opposing jaw is then taken. Any suitable material can be used. A wax bite may be preferred, and if so, should be taken before the plaster impression. I prefer to arrange the casts or models by comparing the interlocking of the cusps and incisal edges as presented in the mouth.

3. If the crowns do not come off in the plaster impression, they are removed and placed in the impression. The impression is boxed and a model

is poured with a stiff mix of casting investment. Any of the materials on the market that will allow more of the same material to be added later and will withstand the heat necessary for soldering will be satisfactory.

4. With the investment material reproduction of the natural teeth ready, and the shade determined, the porcelain pontics are selected. Steele's Trupontics having root tips are recommended and are used in the case described, but the saddle type may be used and a root tip baked on it. The mold should duplicate the natural teeth as closely as possible. It should be borne in mind, however, that these pontics as they come to us from the supply house are stock teeth and can rarely be used without shaping to the desired and proper form.

5. The marked teeth are carefully removed from the model. Cutting is done slowly to avoid chipping of the investment material. The teeth are trimmed below the gum margin and the sockets are made to simulate those from which teeth have recently been extracted. This will permit the placing of the root pontic, the tip portion of which should extend into the aperture about 3 mm. The carving of these sockets is shown in Fig. 3.

6. The pontics are carefully ground to permit proper alinement, and care must be taken to remove sufficient porcelain to allow for clearance of the bite and the establishment of normal lingual contour as compared with the adjacent teeth.

It will be noted that the right lateral in Fig. 2 somewhat overlaps the central. A natural effect could be produced by simulating this condition in the restoration, provided a similar condition is present on the left side. Since it is not in the case described, I have reproduced only enough overlap to satisfy the requirements of occlusion, because I felt that an inharmonious effect would result by overlapping the right lateral while the left one remained in even alinement.

7. The pontics are thoroughly cleaned with a stiff brush, dried well, and all ground surfaces glazed. Es-

theretics can be improved by the use of stains. Boxing of the pontic may or may not be done, but I prefer to box because it gives a larger soldering surface even though it destroys interchangeability. The pontics are waxed into position in proper and desired alinement, and a small piece of modeling compound is pressed against the labial surfaces. The teeth and model should first be painted with a soap solution and the compound should be soft when applied. This produces a matrix, or guide for future alinement (Figs. 4 and 5).

8. The next step is the waxing of the lingual contour of the pontics. The compound matrix will be an aid in contouring the proximal surfaces and in the establishment of contact points for soldering. The wax portions are invested and castings are made, and the gold surfaces are smoothed but not polished. A proximal view of the pontics showing the gold backings in place is given in Fig. 6.

9. The core, or matrix of compound is applied to the model and the pontics are inserted into their proper places after slight roughening of the surfaces to be soldered. Sticky wax is applied to the joints. Care should be taken that the wax is carried around the joint to insure a strong soldered union (Fig. 7). The compound matrix is carefully removed and a final inspection of the case is made. Fig. 8 shows the waxed pontics in position just before the removal of the porcelain sections for the soldering operation.

10. The upper part of the articulator is removed and the model is placed in a bowl of water and allowed to soak for ten minutes. A fairly stiff mix of the same material as was used in the pouring of the model is now applied with a brush, all surfaces except the waxed joints being covered. This mix is allowed to dry and harden; the model is safely removed from the articulator arm by cutting with a small hack-saw. This is now trimmed to as small a mass as possible, and the case is slowly heated and the joints soldered. It is advisable to allow the case to cool slowly after

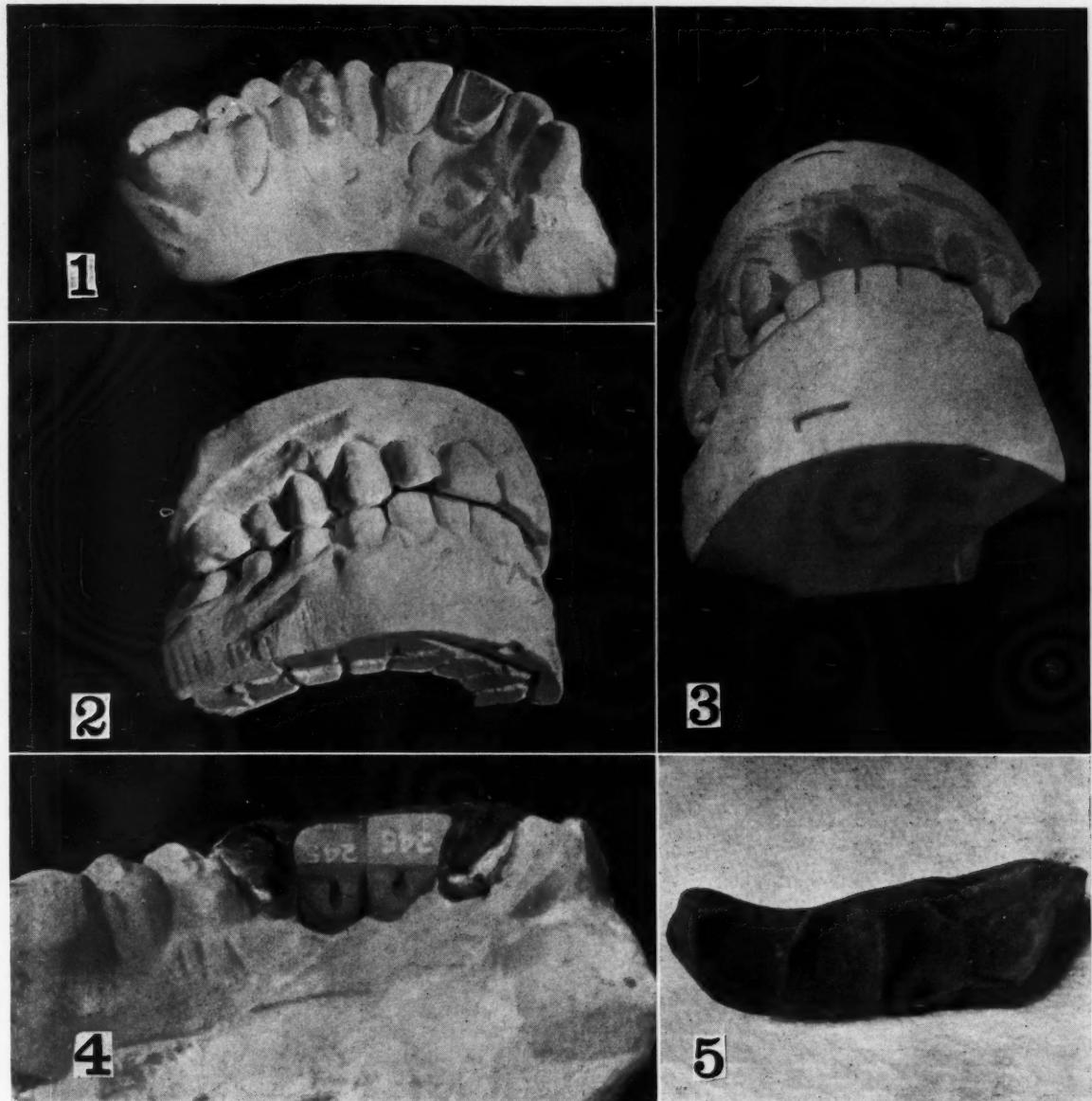


Fig. 1—Investment model with the two three-quarter crowns in place. from model; sockets trimmed.

Fig. 2—Interdigitation of cusps for proper bite relation by comparison with actual mouth condition.

Fig. 3—Case mounted on articulator and the two teeth removed Fig. 4—Pontics ground to place, waxed, and a matrix of compound made.

Fig. 5—Compound matrix.

soldering, since sudden cooling will anneal the metals. After all exposed surfaces have been thoroughly smoothed and polished the porcelain section of the pontics are cemented to place. If the operator is not sure of the shade, he may wait until the bridge is ready for insertion and then alter the shade slightly with a colored cement.

11. The patient now presents for the extractions. Local anesthesia is preferred because of the controlled bleeding. The teeth are removed; the area is cleaned, and the bridge is

seated. The root tips should enter the sockets and be enveloped by gum tissue. The occlusion is carefully checked and the bridge is cemented with a creamy mix of zinc oxide and eugenol. *It is well to wait until the socket has healed and the gum tissue has firmly adapted itself to the pontics before permanent cementation is done.*

CONTRA-INDICATIONS AND CAUTIONS

I do not believe that a satisfactory result can be obtained in all cases.

1. When it is necessary to remove

all or most of the labial or buccal alveolus, or in case of chronic periodontal or periapical conditions when definite bone necrosis has taken place, it will be found on complete healing that the tissue immediately over the root tip will collapse into the socket. The socket is not filled in with bony tissue for some time afterward and even when this does occur it is somewhat at the expense of the alveolar margins, and it is these margins that afford support to the tissue. While this is not necessarily a contra-indication nor is it so disadvantageous as

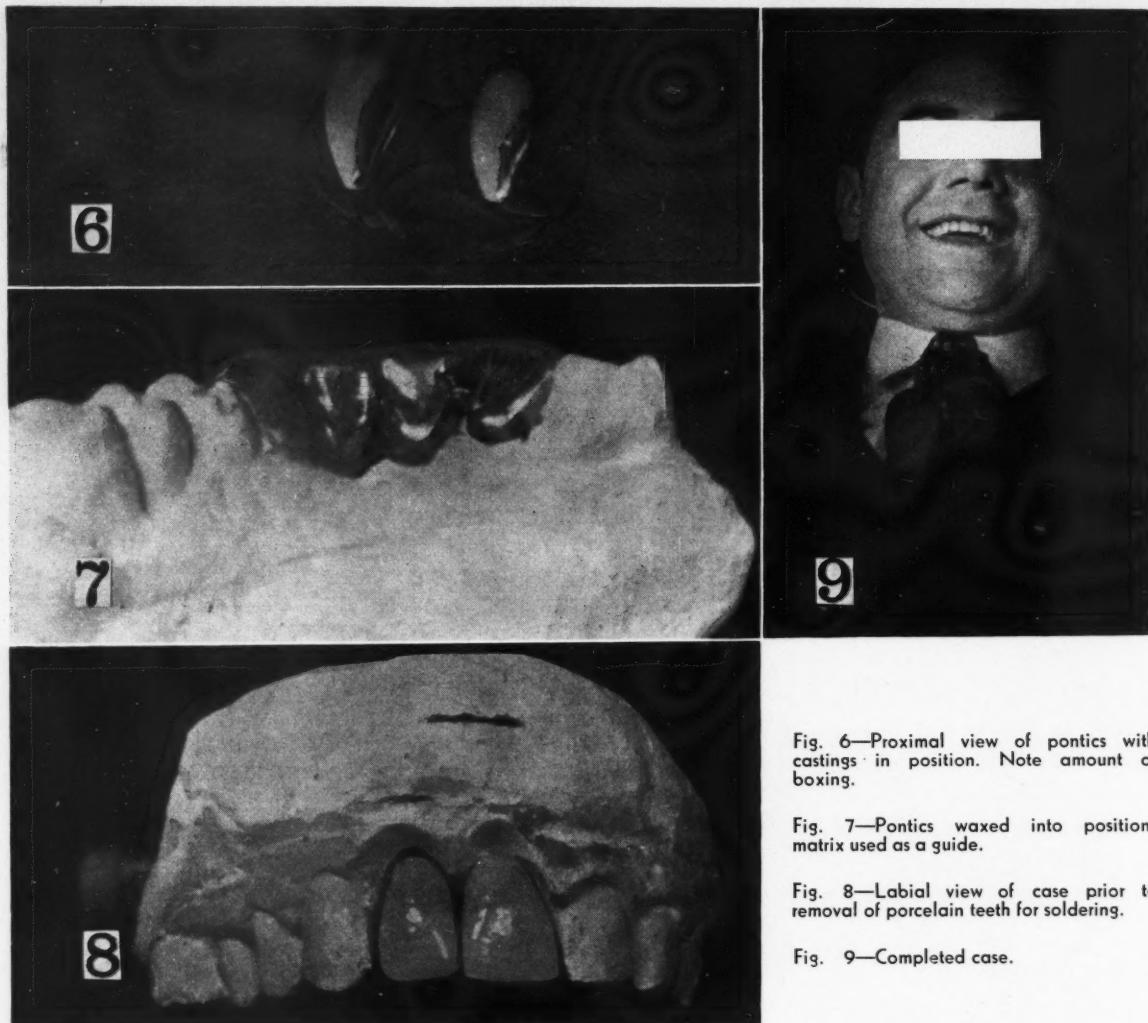


Fig. 6—Proximal view of pontics with castings in position. Note amount of boxing.

Fig. 7—Pontics waxed into position; matrix used as a guide.

Fig. 8—Labial view of case prior to removal of porcelain teeth for soldering.

Fig. 9—Completed case.

to preclude its use, an ideal result cannot be expected.

2. The occlusion must be entirely free of any undue stress, inasmuch as continued abnormal pressure will prevent and retard healing, and may even reopen the socket after the formation of the clot. A great deal depends on the clot being permitted to change undisturbed to granulation tissue, and it is here that the presence of a highly glazed porcelain root tip is beneficial to healing. It prevents the ingress of foreign and infectious material, the introduction of which would prevent the gradual resorption

of the clot and granulation. It follows that any factors tending to effect a more natural healing in a wound will also tend to minimize if not entirely eliminate postoperative pain.

3. It is particularly in those cases in which subacute and chronic infections have existed that it is not advisable to cement the bridge permanently at the time of extraction. When fistulas are present the orifices may close before the granulations can fill the socket, and discharges may or may not seep through the orifices. Easy removal of the bridge, therefore, affords an opportunity for therapeusis.

4. An objection has been raised that food will collect under the flap of tissue and give rise to offensive odors. I constructed an immediate bridge in my own mouth, which I wore uncemented for four months, removing it from time to time to note whether food was collecting, or an odor was perceptible; at no time was I able to detect either. I have, however, constructed cases which on removal did show an accumulation of food around the margin; I attribute this to unhygienic habits on the part of the patient.

MALPRACTICE AND DENTAL DEFENSE

GEORGE R. WARNER, M.D., D.D.S.

Denver

AS THE license to practice dentistry confers signal honors and special privileges on the members of the profession, so also does it impose certain definite obligations. Dentistry, together with medicine, has the responsibility of human comfort, health, happiness, and even life itself in its keeping. The leaders and teachers, and the majority of the members of both professions regard this responsibility as a trust and have instituted courses of training and set up legal barriers that prepare the student for his degree and right to practice, on the one hand, and protect the public from the unprepared or illegal practitioner on the other. Despite the efforts of teachers thoroughly to train their students, despite state examining boards, with their rigid professional and moral requirements, the unfit and unscrupulous, in considerable numbers, do gain the right to practice.

The laity, without the knowledge necessary to judge the ability or even the honesty of the men to whom they entrust themselves for professional care, should have some recourse in case of palpably poor or unskillful treatment at the hands of these licensed but incompetent professional men. Certain laws have been enacted which give patients the right and means to bring suit against medical or dental practitioners for alleged careless, incompetent, unusual, unsanctioned, or illegal methods of practice. Such suits are called "malpractice suits" and would seem to be a proper means of protection to the public. It appears, however, that malpractice suits can be and are instituted without sufficient or just cause.

REASONS FOR MALPRACTICE SUITS

Such unwarranted suits are brought: (1) because some other physician or dentist has criticised the methods or results of the attending physician or dentist; (2) because the patient has been incited to enter suit by an unscrupulous lawyer; (3) as reprisal, because the patient thinks that the bill for services is too high; (4) because a suit may seem to afford a way for the patient to escape the payment of the bill.

PLANS FOR PROFESSIONAL DEFENSE

The medical and dental professions do not wish to defend the member who is grossly incompetent or careless or who practices criminal acts of any nature; but, these professions would have been remiss in their duty if they had failed to take cognizance of the rapid increase of unwarranted and unjust malpractice suits and had taken no steps to correct this evil.

The Medical Society of New York City formulated a plan for defending its members against malpractice suits in 1901. This plan was adopted by the Medical Society of the State of New York in 1906. The Chicago Medical Society inaugurated a similar plan in 1903 which was adopted by the Illinois State Medical Society.

A Medical Defense Act was enacted in Massachusetts in 1908. In this Act provision was made for counsel to be furnished any resident member of the Massachusetts Medical Society who was threatened with suit or actually sued. During the first ten years this cost the society annually up to \$504.00, or a yearly average of fourteen cents per capita for its 3600 members. Ninety-four cases were brought to the attention of the secretary in the first ten years.

The Colorado State Medical Society made a change in its Constitution and By-Laws in 1930 which provided for a Committee on Medical Defense. This Committee drew up certain Rules and Regulations which govern the members of the Society in relation to suit or threatened suit for malpractice.

COMMITTEE ON DENTAL DEFENSE

The success of the Colorado State Medical Society in dealing with these cases, those of threatened suits particularly, was so marked that dentists were attracted by it and coveted something of a similar nature for themselves. A committee was appointed by the Denver Dental Association to present the matter to the Colorado State Dental Association at its annual meeting in June, 1933. The plan met with the approval of the state association; the necessary changes in the By-Laws were effected,

and a Committee on Dental Defense was appointed. The Committee thus appointed was not to function until the changes in the By-Laws as well as the Rules and Regulations of the Committee were published in the *Bulletin* of the society. This did not come about until the December, 1933, issue of the *Bulletin*, but owing to apparent urgency the Committee unofficially handled three cases of threatened suits before the December *Bulletin* was out.

The Committee on Dental Defense is a quasi-judicial body; i. e., it hears evidence in a case of threatened suit or actual suit and decides on the value of such evidence and whether the lines of treatment used were in accord with general practice. It recommends that a person threatened with suit or sued go into court or make a settlement as the case may be. It can lend its moral support to a defendant or not as it sees fit. While it can recommend that a man who is sued go to court and stand trial, it cannot compel him to do so. If he decides to make a settlement out of court he may do so as far as the Committee is concerned. The Committee has no powers other than those prescribed by the By-Laws and described in the Rules and Regulations issued under the authority of the Colorado State Dental Association; yet it has considerable power within the Association, and by moral suasion has some influence, if not power, outside of its own organization.

Among the causes suggested for the bringing of malpractice suits the following has been frequently mentioned: "Because some other physician or dentist has criticised the methods or results of the attending physician or dentist." Herein lies the origin of a great number of malpractice suits, and, fortunately, the Committee on Medical Defense or Dental Defense can in such cases accomplish some good.

HYPOTHETICAL CASE

To show how the Committee on Dental Defense functions in such a case, a description of an imaginary threatened suit is given: Doctor Superior, a well known dentist, was

rather surprised one afternoon to have a woman, who had no appointment, insist on seeing him. When in his chair, she at once exclaimed:

"Oh, Doctor Superior, you don't know me but I know of you through my friends and I want your advice. I have just been to a dentist to have a tooth extracted and he broke it off and then pushed the root into the sinus. He wanted to take the root out but I was afraid to have him and now I don't know what to do. What shall I do? I'm so worried."

"Well, well, how careless," replied Doctor Superior, "I have never broken off a root in the maxillary sinus, but I am sure that I can get it out for you."

"No, no, I couldn't think of having anything more done. I just thought that Doctor Average, I mean the dentist, shouldn't have broken off the tooth and then pushed the root into the sinus, so I thought I would ask you."

With this the woman was on her way and Doctor Superior thought little more about the matter. That wasn't all he was to hear about it, however, for the woman told her husband the whole story and the husband told his version of the affair to a lawyer, including Doctor Superior's remarks to his wife. This resulted in the lawyer advising the husband that he had a case against the dentist who had extracted the tooth and the lawyer was retained to sue the dentist. He therefore wrote Doctor Average a letter telling him that he had been retained in the case and that he would like to have Doctor Average call on him.

Acting under instructions, Doctor Average at once notified the Committee on Dental Defense and the insurance company with which he carried his liability insurance. The Committee on Dental Defense and the insurance company had Doctor Average fill out a questionnaire for each of them on their own particular form. The insurance company's questionnaire went through the company's usual course of examination and evaluation but little more could be done about the case by the insurance company unless and until suit was actually started.

The questionnaire returned to the Committee on Dental Defense was examined and it disclosed that Doctor Average had taken a roentgenogram of the tooth in question before extraction and advised the patient that it would be difficult to remove and that

the maxillary sinus might be involved. His written records also showed that in attempting to extract the tooth, the buccal roots came out but the lingual root broke. He tried to slip an elevator between the process and the root but on the first pressure the root disappeared into the maxillary sinus. He, therefore, told the patient what had happened and that he would have to enlarge the opening in order to remove the root. This the patient refused to let him do and left the office. Doctor Average heard later that the woman had gone to Doctor Superior and so stated in his questionnaire.

The Committee on Dental Defense, at a stated time, called Doctor Superior, and on being questioned, he willingly told what had happened in his office. He also said that the woman's attorney had called on him and had asked him to testify as an expert, which he had agreed to do.

The Committee on Dental Defense questioned Doctor Superior in the following manner:

Q. "How did you know that Doctor Average was careless?"

A. "Well, I assumed that he was or he wouldn't have broken the tooth and let the root slip into the maxillary sinus."

Q. "Had you seen an x-ray of the case before you told the woman that Doctor Average was careless?"

A. "Well, no, I hadn't. She didn't bring the x-ray with her."

Q. "Wouldn't it be quite possible for the root to protrude so far into the maxillary sinus that if it broke in extracting it would be impossible to recover it without its slipping into the sinus?"

A. "Why, yes, I suppose so."

Q. "Doctor Superior, did you ever break a tooth in extracting?"

A. "Of course, I have. Every dentist has broken a tooth at some time or other."

Q. "Would you then consider it certain evidence of carelessness for a dentist to break a tooth in an extraction?"

A. "No—o, not necessarily."

Q. "Did you ever attempt to extract a root that was protruding into the maxillary sinus?"

A. "No, I never had such a case."

Q. "How then did you know that Doctor Average was careless in this case, if breaking a tooth isn't necessarily evidence of carelessness and you have never had any experience in attempting to remove a root that was protruding into a sinus?"

A. "Well, I suspect that I was a little too hasty in what I said."

Q. "Don't you think, then, it would be wise and just for you to apprise the patient that you have decided that you were too hasty and that you wish to re-

tract what you said; and moreover, that you do not care to appear in her behalf should a suit be filed?"

A. "Yes indeed, I'll do just that, and let me tell you, gentlemen, I shall be more careful in the future as to what I say about another dentist's services."

ADDITIONAL FUNCTIONS OF COMMITTEE ON DENTAL DEFENSE

While the recital of a hypothetical case of threatened suit shows how useful the Committee on Dental Defense can be in averting such a suit, it does not cover the Committee's field of usefulness.

1. The Committee may call before it any member of the society who has criticized another member or talked disparagingly of another member even though no threat of legal action has resulted.

2. The Committee may be consulted by any member who is in legal difficulty.

3. The literature of the Committee has had the effect of making members more careful about what they say to patients in regard to other dentist's services.

4. This literature and every utterance of the Committee stresses the importance of dentists rendering the best possible service; of using roentgenograms; being up-to-date in every way, and keeping detailed written records, thus protecting their patients as well as themselves in any and every possible contingency.

5. The Committee on Dental Defense must primarily defend the members of the Association against the threatened or actual unfair malpractice suit. Nevertheless, it always has in mind its duty to the patient and if it seems in any given case that the dentist has been derelict in his duty, unskillful or careless in his treatment, the Committee does not hesitate to take the part of the patient and advise the dentist to do everything in his power to correct the error, repair the injury, or make whatever amends right and justice dictate.

6. While the Committee on Dental Defense was authorized primarily for precisely the purpose its name indicates, it is proving to be a strong factor in making society members better dentists and more ethics-conscious. It is strengthening the bonds of organized dentistry.

WHY DENTAL CAVITIES WITH MODERN CIVILIZATIONS?

13. Field Studies Among the Polynesians and Melanesians of the South Sea Islands

WESTON A. PRICE, D.D.S., M.S.

Cleveland

SAMOAN ISLANDS

The native population of the Samoan Islands is Polynesian. The control of the islands is divided between two governments. The eastern group is American and the western group, now British. Before the World War, they were under German control. The western group is now under a mandate to New Zealand. Through the kindness of the Governor and Naval Officers of American Samoa, transportation was provided on an auxiliary craft to go to the various islands of the American Samoa group. We were particularly indebted to Commander Stephenson, Director of Health, whose guests we were, for continued personal assistance in making favorable contacts in nearly all villages of the American group of islands. In no islands of the Pacific did we find so excellent an organization for health service. Dispensaries have been established within reach of nearly all the villages besides hospital service at Pago Pago, the port of Tutuila. The naval station is located here. This is the finest port in the Pacific Ocean. Notwithstanding the regular monthly contact through merchant ships to and from America and Australia with this port, many isolated groups were found living largely on the native foods. A dental survey had recently been made of this group by Lieutenant Commander Ferguson.⁶ This is one of the few groups of islands in which the population is not rapidly decreasing; indeed there is some increase. The Navy personnel includes one dentist, who at present is Lieutenant Commander Lowry. His time is almost all required for the personnel and families of the Navy at this station. He, accordingly, can only do a limited amount of emergency service, such as extractions, for the natives. About 90 per cent of the inhabitants of American Samoa are on the largest island, Tutuila, and owing to the development of roads a considerable portion of the people have some access to the main port, to which several of them come on ship days to sell their

wares and buy provisions to augment their native foods. The incidence of dental caries among those living in part on imported foods at the port as compared with those in remote districts living only on native foods was as follows: those almost exclusively on native foods had 0.3 per cent of the teeth attacked by dental caries and for those on trade foods 18.7 per cent of the teeth examined.

HAWAIIAN ISLANDS

Several dental surveys have been made in the Hawaiian Islands. These islands are unlike any of the other Pacific island groups previously discussed. Sugar and pineapple plantations cover vast areas and together constitute by far the most important industries of the islands. In many districts the population is almost entirely foreign or various blends, chiefly of Filipinos and Japanese with Hawaiians. There is a large American population and a considerable European population. These different racial groups have largely brought their own customs which are rapidly submerging the native customs. Since the native population is so greatly reduced in comparison with the foreign population and because intermarrying has been so general, it was difficult to find large groups of relatively pure blooded Hawaiians either living almost entirely on native foods or on modernized foods. Though the number of persons in these groups is accordingly not large, important data was obtained for comparing the relative incidence of dental caries and other degenerative processes. While the native foods on the various Pacific islands have many factors in common; for example, all use the underground oven of hot stones for cooking, the Hawaiian Islands present one unique difference in the method of preparation of their taro. They cook the root as do all the other tribes, but, having done so, they dry the taro, powder it and mix it with water, and allow it to ferment for several hours, usually twenty-four or more. This preparation called "poi" has become slightly tart by the process of fermentation and has the consistency of a heavy strap molasses or a heavy cream. It is

eaten by rolling upon one or two fingers and sucked down. Accordingly, it offers no resistance to the process of mastication. In the districts where the natives are living on native foods the incidence of dental caries was only 2 per cent of the teeth examined; whereas among those natives who are living in large part on the imported foods, chiefly white flour and sweetened goods, 37.3 per cent of the teeth have been attacked by tooth decay.

COMMENTS

The study of the incidence of dental caries in these various South Sea Island groups in its relation to diet was only one of several of the problems investigated. Since nutrition is the principal factor that has been found related to the rôle of immunity and susceptibility to dental caries in my previous field studies, the collection of foods for chemical analysis and the gathering of detailed data regarding the articles of diet have been an important part of the activities of this group of studies. The data relating to the chemical and activator content of the foods are so voluminous that they cannot be included here and will accordingly be reported elsewhere.

Particular attention was also given to and data were collected for relating the incidence of irregularities of the teeth and dental arches to the type of nutrition. Similarly, studies were made of the persons who had been hospitalized in the few places where hospitals existed, chiefly in order to obtain data regarding the classification of those who are suffering from tuberculosis. These were similar to the studies that I have previously made and reported among the Eskimos and Indians of Alaska and northern and central Canada, and the people in isolated districts of Switzerland and the Outer Hebrides.

The physical excellence of the South Sea Islanders who were living on the native foods can be judged somewhat by the accompanying illustrations. I was frequently told that the only cause of suicide in the South Sea Islands was the suffering from aching and abscessed teeth. No dental service was available on most of the

⁶Ferguson, R. A.: A Dental Survey of the Children of American Samoa, J.A.D.A (March) 1934.

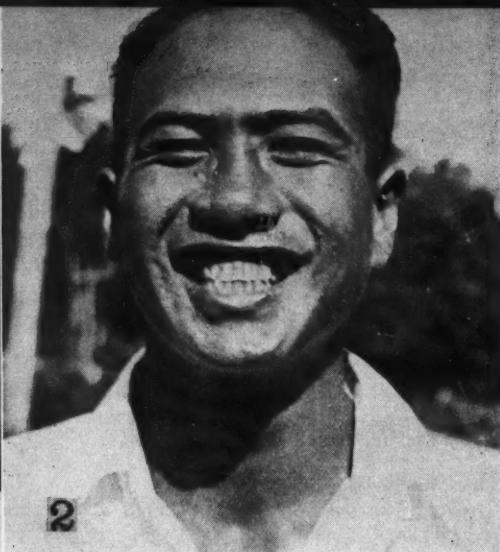


Fig. 1—A typical Polynesian woman living on native food.

Fig. 2—A typical Polynesian man.

Figs. 3, 4, and 5—Typical modernized Polynesians.

islands and there were only a few dentists in all the Pacific archipelagos. If one will picture a community of several thousand people with an average of 30 per cent of all the teeth attacked by dental caries and not a single dentist or dental instrument available for assistance of the entire group, a slight realization is had of the mass suffering that has to be endured. Commerce and trade for profit blaze the way in breaking down isolation barriers far in advance of the development of health agencies and emergency relief, unwittingly made necessary by the trade contact.

While dental caries was most active in the period of overloads, such as growth and gestation and lactation, even the splendidly formed teeth of the adult men were wrecked by dental caries when the native food was

displaced with modern foods. In all the groups living on native foods with a liberal intake of animal life of the sea the health of the gums was generally excellent. When, however, the seafoods were limited in the dietary, heavy deposits formed and often were associated with a marked destruction of the supporting tissues with gingival infection. This condition was particularly prevalent among all groups near the ports who were displacing part of their native foods with imported foods.

In American Samoa through the cooperation of the educational authorities and the Director of the Department of Health, Commander Stephenson, and under the direct supervision of Lieutenant Commander Lowry, the dental surgeon, a group of four young men of the native staff

was selected and given instructions for the removal of the deposits. Instruments have since been provided, partly through the kindness and generosity of some American dental manufacturers. This probably constitutes the only native dental service that has ever been available in any of the Pacific island groups. The intelligence and aptitude with which these men were able to learn the fundamental principles, and their skill in carrying out a highly commendable prophylactic operation, was indeed remarkable. I gave them pieces of soap and asked them to carve a reproduction of an extracted tooth which was given as a model and in which they were required to increase all diameters to a given amount. Their work would probably equal if not exceed in excellence that of the first effort of 90

per cent of American dental students. Many of these natives are dexterous with their fingers and are skilled artists in carving wood and other material.

A service could be rendered to these people, who are in the process of modernization but who have no opportunity for dental assistance, by teaching some of the bright young men some of the procedures for rendering first aid. They could be

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compensated by contributions of native food and native wares, as our itinerant dentists were in earlier days. The people would not have money to pay an American or European dentist for his service until trade is carried on with currency.

Many of the Island groups recognize that their races are doomed since they are becoming exterminated through degenerative diseases, chiefly tuberculosis. Their one overwhelming

desire is that their race shall not die out. They know that something serious has happened since they have been touched by civilization. Surely our civilization is on trial both at home and abroad.

The discussion of foods in their relation to the susceptibility to dental caries, the development of facial deformity, the irregularity of the dental arches, and the influence of nutritional deficiency during the growth period on susceptibility to disease, particularly tuberculosis will be discussed in communications that will appear in the *Dental Cosmos* and the *Journal of the Canadian Dental Association*.

BRIDGE REPAIR TECHNIQUE

CARL J. GRAVER, D.D.S.

Cleveland

ON SEVERAL occasions I have seen a case in which a posterior Steele's facing had been broken on a bridge and with it either part or all the pin. To repair such a case without removal of the bridge has presented a problem. I am, therefore, suggesting a simple repair technique for such cases. Fig. 1 shows the type of case in which the following repair technique is indicated:

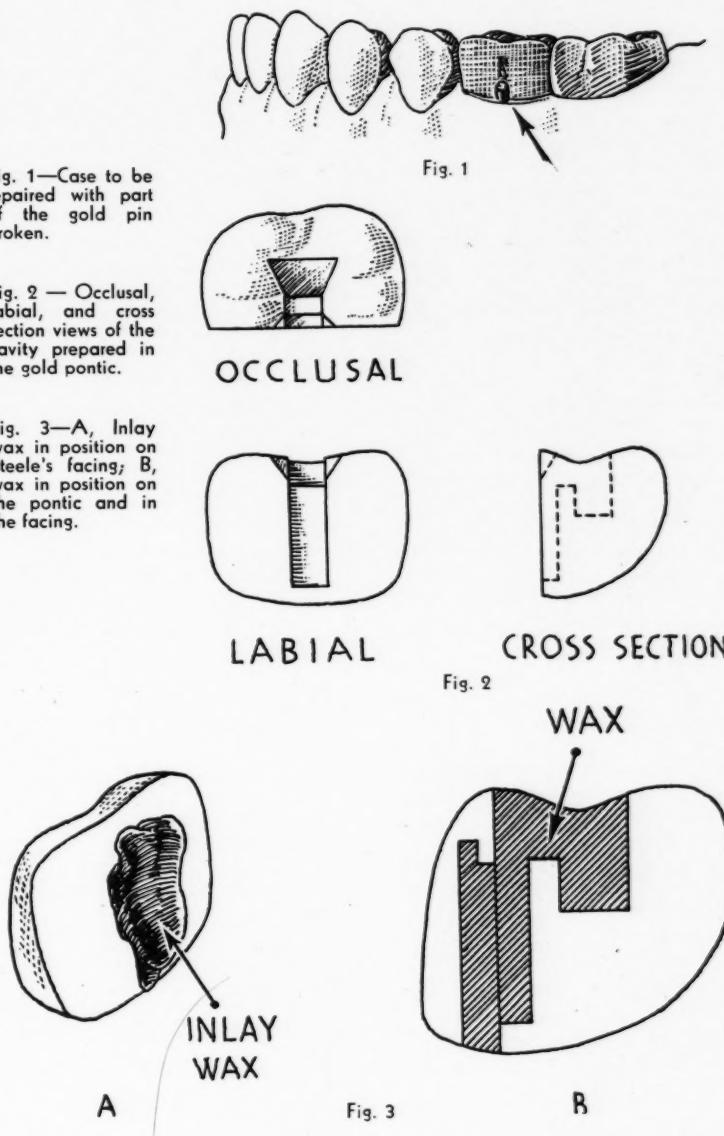
TECHNIQUE

1. Cut off the remainder of the pin with stones and discs.
2. Grind the backing to make it smooth.
3. With burs and stones cut a deep slot in the gold pontic and carry it over the occlusal in a dovetail. Fig. 2 shows the various views of this retention form.
4. Select the proper facing; grind to form, and reglaze.
5. Lubricate the slot in the facing and fill to excess with inlay wax (Fig. 3, A).
6. Place this facing in position on the bridge and force the inlay wax into the cavity prepared on the gold pontic. This gives an impression in wax of the slot on the facing and of the cavity prepared on the pontic. Fig. 3, B is a cross section view of the wax carved and in position.
7. When the case is completely waxed, attach a sprue to the wax pattern in the gold pontic and remove; then gently slide off the facing and the completed wax pattern is ready.
8. Invest, cast, and cement the casting in position. Before cementation, it is advisable to roughen the cavity in the gold pontic as an aid to retention.
9. When the casting is finished, cement the facing in position.

Fig. 1—Case to be repaired with part of the gold pin broken.

Fig. 2—Occlusal, labial, and cross section views of the cavity prepared in the gold pontic.

Fig. 3—A, Inlay wax in position on Steele's facing; B, wax in position on the pontic and in the facing.



THE USE OF THE INTERMAXILLARY MATRIX IN THE CONSTRUCTION OF A SINGLE FULL DENTURE

HENRY E. ROSTOV, D.D.S.

Baltimore

THE use of the intermaxillary matrix in the construction of full superior and inferior dentures was described by me in a previous issue¹ of this magazine. That article dealt solely with the simultaneous building of the two dentures. I am convinced that a great deal of time and labor can be conserved by employing the matrix in constructing a single upper or lower denture to occlude with an opposing edentulous arch, or, in some instances, to an opposing denture. In addition to the saving of time, the resulting denture is a more comfortable one and more satisfactory functionally and esthetically.

Some difficulty may be encountered in establishing the correct bite and interdental space when the customary procedure is followed of building a bite-block and having the patient bite into the softened bite ridge until the correct closure and bite are registered. By using the intermaxillary matrix we are assured that the patient will have the same bite and jaw closure after the denture is completed as before the remaining teeth were extracted.

In choosing cases for the use of the matrix it is necessary that the dentist see the patient when he is still in possession of some of his teeth (at least two of which must be in antagonistic contact), and that some well healed edentulous spaces be present. The dentist should select cases for this particular technique only when he is satisfied that if the same rela-

tionship is maintained with the dentures as the patient exhibits on his original visit he will consider the result satisfactory. These cases are in the majority. Extensive malocclusions and deformities obviously should not be reproduced with the denture.

TECHNIQUE

1. The cases fall into two groups. There is a slight difference in the handling of these two groups. Before casts are poured from the impression it is essential to determine whether it will be possible to mount them on an articulator without building a bite-block or whether it will be necessary to build a bite-block to establish relationship. In the case shown in the illustrations wax bites would not have been so accurate in mounting the casts as was the securing of a bite by the use of the bite-block in the patient's mouth. The cases requiring the building of bite-blocks are in the majority; I am, therefore, describing the example of that type first.

2. On the patient's first visit upper and lower impressions are taken with good compound or an elastic impression material. Plaster casts are poured from these impressions.

3. Before the patient presents himself for the second visit a bite-block is constructed with wax stilts added to occlude with the edentulous spaces of the lower arch (Fig. 1). The patient is seen for the second time at this stage when the occlusal rim of the bite-block as well as the stilts are softened by heat and placed in the patient's mouth.

4. The patient is instructed to close until the remaining teeth are

brought into contact through the wax. The wax is firmly pressed against the teeth and edentulous spaces, allowed to harden, and then removed from the mouth.

5. The upper teeth are then extracted during the second visit, and the patient is dismissed (Figs. 2 and 3).

The bite-block becomes the intermaxillary matrix. It is an impression in wax of all areas of both arches (teeth and ridges) that are not subject to change after the extraction of the teeth. It is a permanent record of the natural or habitual bite and ridge relationship.

6. The sockets are permitted to heal until the dentist is ready to take the edentulous impression of the upper arch. This is done on the patient's third visit. From this time until the completion of the denture, it is not necessary to see the patient again unless the dentist prefers to have a try-in set-up before vulcanization.

7. A cast is poured from the edentulous impression. This cast is seated into the superior surface of the intermaxillary matrix; the inferior surface is adapted over the lower cast, thereby keeping the same relationship. No difficulty will be encountered in properly seating these casts since there will be enough unchanged areas to offer sufficient surface for proper seating (Figs. 4 and 5).

If desired the original cast (upper) may be used as a study model in the setting up of the teeth to reproduce any irregularities or definite characteristics in the denture.

¹ Rostov, H. E.: The Use of the Intermaxillary Matrix in Full Denture Construction, DENTAL DIGEST, 40:2 (January) 1934.

3655 Park Heights Avenue.

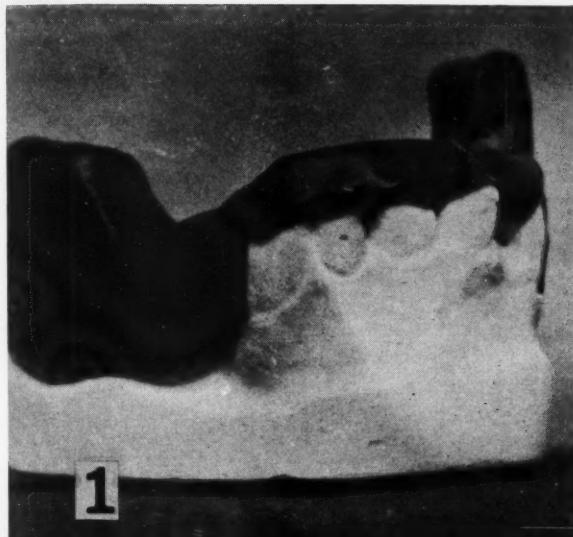
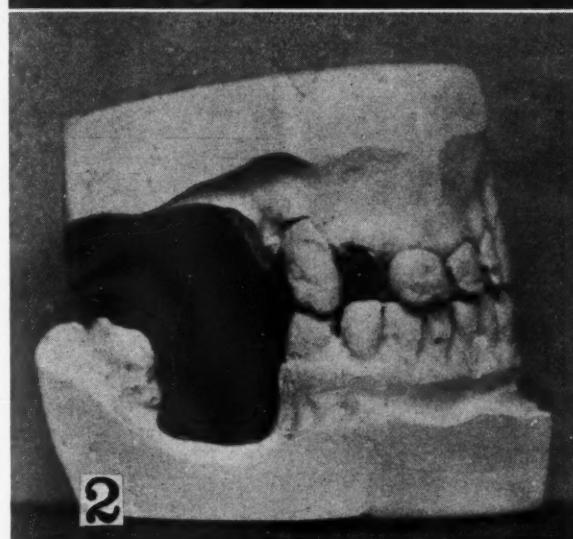


Fig. 1—Bite-block with occluding wax stilt on upper cast.



Figs. 2 and 3—Upper and lower casts in position.

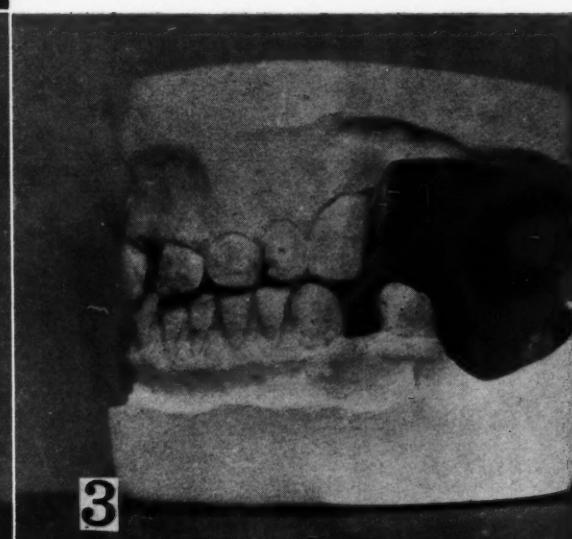


Fig. 4—Case mounted on plain line articulator with matrix in place.

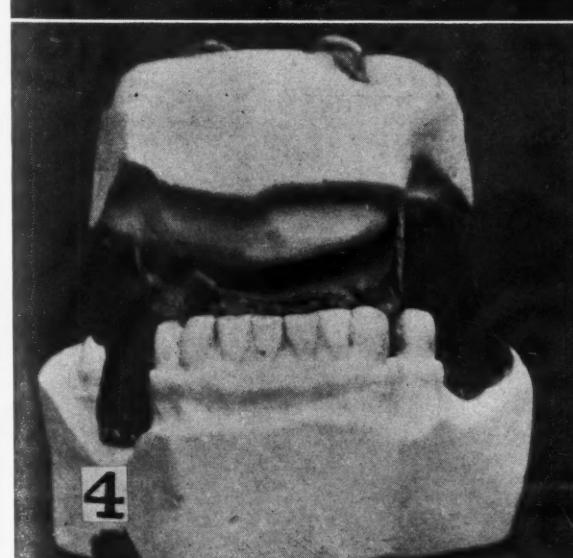
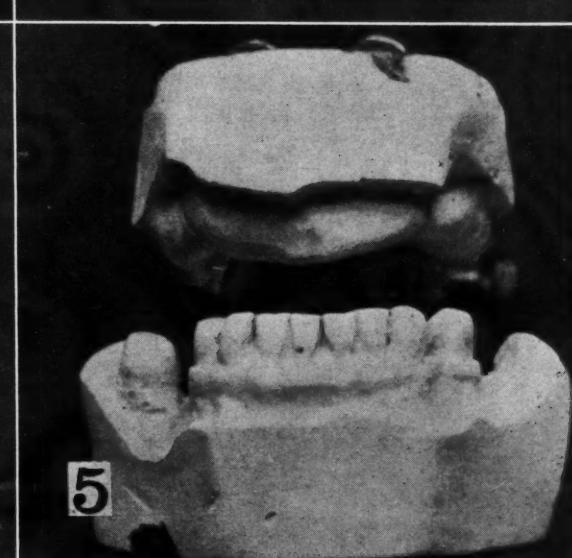


Fig. 5—Matrix removed. This matrix fits accurately in the patient's mouth just as cast does on articulator. Same relationships have been maintained.



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THE SATURDAY MAGAZINE.

[DECEMBER 14,

SELF-SUPPORTING DISPENSARIES.

We are always glad when we can make our Magazine a vehicle for communicating information, respecting any plans really calculated to improve the condition of the poor. There is no want of a benevolent disposition in the present day. Thousands, we believe we may say* millions, of pounds, are annually expended in this country, with a view to relieve poverty and distress. It is, however, to be feared that many of the plans pursued, have no other tendency than to increase, and to perpetuate, the evils which they profess to remove. But, of late, sounder views on this subject have begun to prevail; and it is acknowledged that almost the only way, by which we can really benefit the poor, is to teach them prudence and forethought, and to lead them to depend, for their maintenance and comfort, upon their own industry, forbearance, and frugality.

for assistance, and frugality.

Amongst the benevolent institutions which are based upon this principle, there is scarcely one more valuable than a Dispensary, which was established originally at Southampton, in Warwickshire, under the title of a Self-supporting Dispensary. The outline of the plan, which is all that we can pretend to give at present, is this;—the institution is intended for persons principally supporting themselves by labour; and these persons, by making, when in health, a small weekly contribution, become entitled to medical advice and assistance in illness; while the sums contributed, being thrown into a common fund, afford a remuneration to the medical attendant, under the direction of a committee. Of this plan we shall best, perhaps, perceive the advantages, by considering the following contingencies to which a poor man, unfortunately, is but too liable. We will suppose him to be sober, industrious, and prudent; we will even take the favourable supposition that, after his marriage, he is both able and willing to maintain himself and his family in independence; but who can secure him from illness in the person of himself, his wife, or his children? and if this calamity befall him, what, in the great majority of cases, is the consequence? Without imagining any unfair charges to be made, his doctor's bill is likely to absorb all his small savings, if not to involve him for a considerable time in debt. With this dismal prospect, it is well known that many a poor man sickens and pines, perhaps dies, of maladies which might have been easily removed by medical skill, in an early stage of the complaint. His other alternatives are, to apply to the presumptuous ignorance of the Quack-Doctor; or, what is yet more probable, to avail himself of the ready resource of the Parish, and thus to take the first step in that downward and slippery path of pauperism, from which few are able afterwards to recover themselves. The principal and most important feature of the Self-supporting Dispensaries is, that they afford a protection against every one of these evils. The contributor, or assurer (for these Dispensaries are nothing but societies of mutual assurance against sickness), is able to obtain sound medical aid; to obtain it from the moment when he begins to fail, and that without forfeiting his independence, without impairing his resources, and without enduring those melancholy forebodings of want, which press so heavily on the mind of the sick labourer or artisan, and aggravate the pains and the dangers of his complaint; and this advantage appears to be so great, that hardly another word need be said to recommend the system.

* See, in the *Pietas Londinensis*, what sums are given away in the Metropolis alone.

We must, however, point out, that the poor man is by no means the sole party benefited by it. To the medical practitioner it must be no small gain to receive a reasonable remuneration for his time and trouble, without resorting to that system, which must be so painful to a man of liberal education and feelings, the farming the sick poor, for the wretched pittance which parochial economists will give; often to the individual who will undertake the job at the lowest bidding.

It may be added, as a further and indirect advantage of this system, that it tends to give a general encouragement to that spirit of independence in the poorer classes, which our poor-laws, aided by the thoughtless and indiscriminate manner in which private charity is too often dispensed, tend so fearfully to weaken. And we must also observe, that it is in perfect accordance with the spirit of reciprocal aid and co-operation,—with the apostolical precept of bearing one another's burdens,—which distinguishes all associations of mutual assurance, all Friendly Societies formed upon sound views and calculations, in contrast to the less social principle of Savings' Banks.

The Self-supporting Dispensaries, unquestionably, are principally suited to towns. There are, however, but few of our larger villages without a sufficiently skilful surgeon and apothecary; and a few adjoining parishes, although small, may combine together, and afford enough contributors for the establishment and support of one of these institutions.

In their perfection, these Dispensaries should be entirely dependent on the contributions of the benefit (or free) members, without any further aid from their richer neighbours, than their countenance and their superior information in managing the funds. In some cases, however, Honorary members are admitted; and their subscriptions go toward the expenses of the outfit, toward paying the rent of the house, and procuring for the patients the advantages of wine, and of some medicines, and other comforts more costly than the regular income of the Dispensary can afford to supply.

It is not, however, our intention to enter into the details of this plan at present. As we before said, a Dispensary on this principle was first established at Southam, under the direction of Mr. H. L. Smith, a liberal and enlightened, and truly humane, surgeon of that place. The same gentleman has since been instrumental in planting them at Derby, Burton-upon-Trent, Coventry, Willesbourn, Atherston, Rugby, and other places. Where they have been allowed fair play, and have experienced that firm and cordial support, which is always requisite for the first establishment of any plan likely to affect existing interests, they have invariably been attended with excellent success. And we doubt whether it would be possible, in the present day, to point out another plan, better calculated to promote the real and substantial interests of the labouring classes.

G. G.

LET US never exercise cruelty upon the smallest creature that is within our power, but ever remember, that every thing which breathes is the object of Divine benevolence; that they who would receive mercy from God, are expected to practise it towards all that have life; and that the truly merciful man will be merciful to his beast.—**Mrs. TRIMMERM**

I WOULD advise all in general, that they would take into serious consideration the true and genuine ends of knowledge: that they seek it not either for pleasure, or contention, or contempt of others, or for profit, or fame, or for honour and promotion, or such like adulterate or inferior ends: but for merit and emolument of life, that they may regulate and perfect the same in charity.—BACON.

1833.]

ENGLISH
No. V.

SIR WALTER RALEIGH, Esq., of
Oriel College, only seventeen
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The Editor's Page

HISTORIANS who record the development of health insurance systems usually ascribe the origin of such planning to Bismark and place the year as 1883. It is a fact that fifty-two years ago, Bismark, Chancellor of Germany at that time, in an attempt to disarm a socialistic movement, decreed: "If the working man is healthy, give him an opportunity for work. If he is ill, give him medical attention. If he is old, give him a pension as long as he lives." We recognize that this pronouncement represents the social security triad of unemployment assurance, old age pensions, and health insurance which is being advocated today. The actual beginnings of social security planning probably reached back as far as the Industrial Revolution and were closely allied with the development of guilds.

On the opposite page of this issue is a photostatic copy from a British magazine which is more than one hundred years old. Under the title of "Self-Supporting Dispensaries," we find that the same arguments were raised one hundred years ago as are being used by the proponents of health insurance in 1935. This article scarcely needs interpretation. Its exposition is complete and clear. A parallel may be pointed out, however: This model self-supporting dispensary which is mentioned was to be supported by regular contributions from employed persons; money was to be thrown into a common fund, and the remuneration of a medical attendant was to be under the administration of a committee. This corresponds exactly with the several model health insurance bills now being proposed which provide for compulsory contributions by employed persons; the establishment of an insurance fund and commission, and a professional committee to determine policies and standards.

It is interesting to observe that this one hundred year old type of medical care was to be created exclusively from contributions by employees. Employer contributions and subventions from the State, as is the case in most proposed health insurance schemes today, was not considered acceptable. (In the California Health Service Insurance

Plan, however, there is no provision for the use of State funds. The contributions are made exclusively by employees and employers.)

The dangers of trafficking in human health apparently were well recognized one hundred years ago. It was appreciated that a system of assigning the care of the indigent sick to the lowest bidder would not assure a high quality of treatment. At the present time some of us see the menace of the possibility of such traffickers in human health entering the field to supply dental care under a health insurance system. Specifically, the passage of laws in various states prohibiting dental advertising will, we hope, for all time outlaw this type of unethical practice. The recent opinion of Chief Justice Hughes, affirming the decision of the Oregon courts in prohibiting dental advertising, will give impetus to other states in drafting anti-advertising bills.

When the advertising dentist finds his source of income dried up, he will seek another method of livelihood. Because he is trained in methods of mass production, it is not likely that he will become absorbed into the body of orthodox practitioners; it is likely that he will be quick to search out other lucrative sources of income in the dental field akin to his habitual methods. It is not, therefore, a far stretch of the imagination to see the advertising dentist organizing so-called clinics and dental groups to enter into contract practice with large industries or with trade unions. The step from contract practice with individual industries or local unions to contract under any health insurance system is a short one.

Professional organizations may expect all along the line in any discussion on a health insurance project the competition of the former advertising dentist who, through the pressure of law, has slipped out of one ignominious rôle into another. We all rejoice that the dental scene is being purged of the abnoxious advertising dentist. We should not, however, be too confident that this is his demise. It is altogether probable that he will reappear in the cast of characters under any system of third party practice.

BALANCING THE MIX OF DENTAL CEMENTS

C. S. KILE, D.D.S.

Hutchinson, Kansas

IT IS a far cry from the first cast gold inlays to the castings being made at present. Today we are able to cast to precision consistently; nevertheless, even with these fine castings we would not think of placing them in the mouth without the protective seal of cement.

I have been working for a number of years to establish the correct ratio of cement powder to liquid in order to produce a balanced mix, and thus enable every dentist to make accurate mixes of cement consistently. Guess-work in the field of cements would thereby be eliminated as it has been in casting investments.

A number of years ago I wrote to several manufacturers of dental cements and to the Dental Section of the Bureau of Standards for any information they might have relative to the proper powder-liquid-ratio for dental cements. I was informed that there were no such specifications. I started at once to work out some specifications for myself, because after I had worked to make a casting as near perfect as I could, I did not like to seal it with a guess-work mix of cement. I wanted to relieve my own mind of this uncertainty by establishing a perfect mix of cement.

1. The first problem was that of keeping the liquid stable because dental cement liquid is a phosphoric acid solution, and therefore, hygroscopic. It is well known what the average cement liquid and bottle look like after having been in use a short time. To overcome that sloppy condition and to keep the liquid fresh, I placed the liquid in some clean, dry anesthetic capsules and sealed the ends. In this way, moreover, there was no possibility of scraping excess powder off the slab into the wrong bottle.

I remove the flanged rubber cork from the end of an empty capsule and pour the cement liquid from its original container into the opposite or open end of the capsule. By this method the flanged cork is transferred from one end to the other of the capsule.

2. The next problem was to discharge exact amounts of liquid for each mix from these tubes. I tried a number of different ways over a period of time and discarded them, one by one, because of the guess-work in-

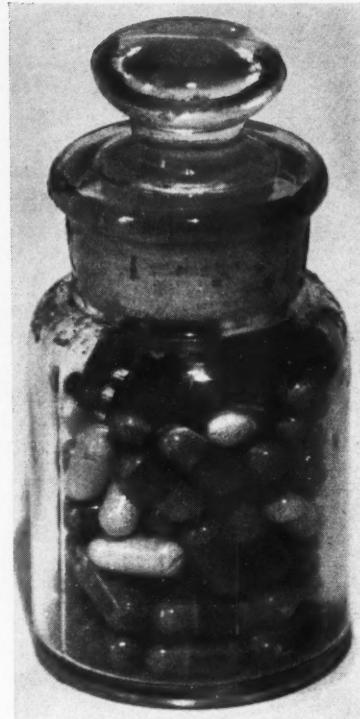


Fig. 1—Capsules containing cement powder.

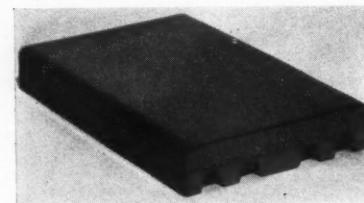


Fig. 2—Cement mixing slab (black).

volved. Finally I developed an instrument that would discharge a measured amount of liquid from the tubes, the tube resealing itself each time as it was when it contained the anesthetic solution.

Fig. 3 shows the instrument used to release the liquid from the tube. It is a large-gauged hypodermic needle with a vulcanite finger grip to facilitate handling. The capsule is placed in the syringe. The beveled end of the discharging instrument is thrust through the cork on the end that corresponds with the position of the

needle as used in making anesthetic injections. By thumb pressure on the syringe an accurate amount of liquid may be released upon the mixing slab. After the desired amount of liquid is expelled the instrument (Fig. 3) is removed and the rubber cork automatically closes to seal the tube.

After one of the capsules is emptied of cement liquid, I do not attempt to use the flanged cork in another tube or again in the same tube, because the large needle on the discharging instrument cuts a large hole into the cork which makes subsequent resealing difficult.

3. Having eliminated the guess-work thus far, the next step was to balance the powder to the liquid proportions. I soon discovered that each kind of cement required a different liquid-powder-ratio. I confined myself, therefore, to one cement to simplify the task. If such a ratio could be worked out for one cement, it could be worked out for all cements. The powder-liquid-ratio which I used several years ago was essentially the same as that used by the Bureau of Standards in their preliminary report, although I believe this ratio makes too stiff a mix for general use.

4. The powders were packed in the ordinary gelatin capsules. In my clinics I used capsules and liquid tubes of the same color to demonstrate how simple it could be made for the dentist or his assistant to distinguish the proper powder and liquid combination.

5. The mixing slabs available proved unsatisfactory; therefore, I made one that consists of a rather porous, ribbed earthenware body, with a thin jet-black, highly glazed working surface. The reason for the black working surface is to enable one readily to see the cement during the process of mixing and thus preclude the possibility of not incorporating all the liquid and powder.

I have contended for years that dentists should have a variable slab temperature in relation to room temperature. This is the reason for the porous, ribbed body of my mixing slab. The slab is soaked in ordinary tap or room temperature water; then dried. The circulation of the air

about the porous, ribbed body surface of the slab will evaporate the water from the porous body, and thus, automatically, keep the working surface at a proportionately lower temperature than the room temperature. This depends on the humidity percentage of the atmosphere of the room. Besides, it is impossible for this slab, if so treated, to reach the dew-point, for the higher the humidity percentage, the lower is the slab temperature range, and vice versa.

COMMENTS

With the slab and the powder-liquid-ratio established, accurately measured and mixed over a definite period of time, I believe more satisfactory and uniform results will be obtained. To establish a slab temperature arbitrarily, irrespective of room temperature and humidity percentage, to my mind, is all wrong; furthermore, the greater percentage of dentists do not have the facilities for bringing their slab to 65°, 70°, or 75° at will, as is recommended by some manufacturers at the present time. The dew-point is governed by the temperature-humidity ratio; the greatest difficulties with cement are

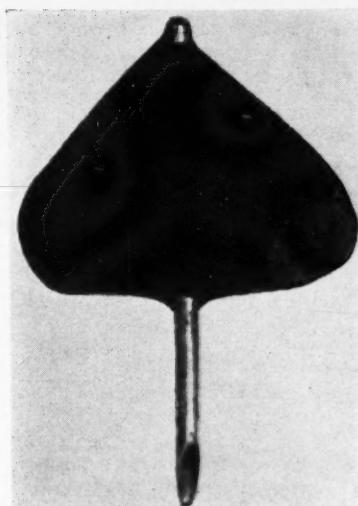


Fig. 3—Discharging instrument.

encountered during the summer, because of the condensation of the moisture on the slabs when the slabs are brought to too low a temperature in relation to room temperature and humidity percentage in offices; it varies from day to day. If it were possible to have a constant room temperature

and humidity percentage ratio, then we could have a constant slab temperature; but as long as we have a variable room temperature and humidity percentage ratio, I believe we should have a corresponding variable slab temperature.

The mix should be carried on over a definite period for consistent results. For a number of years, both in my private practice and in clinics, I have used a mixing time of one and one-half minutes. Various rates of powder incorporation were tried and I am led to believe that if the powder-liquid-ratio were accurately established and controlled; variable slab temperature used in relation to the room temperature and humidity percentage, and the proper mixing time established—then, one could incorporate all the powder at one time into the liquid and the result would be the ideal cement.

That which is true of zinc phosphate cements as to the standardization of the mixes, likewise holds true for siliceous cements. When this goal of standardization is once reached, the siliceous cements will lose a great deal of their present deserved criticism.

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article in two installments concludes the studies in this magazine. Doctor Price's complete professional biography appeared in March, 1933; in April, 1933, he was the subject of a special feature article in which he was described at work in his research laboratories.

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THE TEETH AND ENDOCRINE DISTURBANCES

RITA FINKLER, M.D.

Newark, New Jersey

THE quickened tempo of the present day civilization, the artificialities and strain under which man lives have increased the incidence of endocrine disturbances in the present generation.

The endocrine chain consists of the pituitary gland, the pineal, thyroid, thymus, parathyroids, adrenal glands, gonads, and the pancreas. All these glands of internal secretion are richly supplied by a network of vegetative nerves and ganglions, which constitute a part of the greater sympathetic nervous system. The functional failure of any one gland produces secondary effects in other glands; the most important effect, however, is a general disturbance of the metabolism of the body.

The external manifestations of a disturbed metabolism are manifold. There are trophic disturbances of the skin, hair, nails, crystalline lens, and teeth. This article deals with the dental manifestations found in various endocrine disturbances.

Generally speaking, all endocrinopathies have an adverse influence on the integrity of dentition; the effect is probably due to a general disturbance of metabolism in endocrine diseases.

Diabetes is known to cause decay, infection, and loss of teeth. Pregnancy produces a stimulation of the whole endocrine chain; occasionally an overstimulation results in exhaustion, especially of the thyroid and parathyroid glands. This exhaustion causes faulty calcium metabolism, re-

sulting in soft, friable teeth; it is especially noted during lactation, when an excessive demand for production of calcium cannot be met.

In tetany, owing to parathyroid failure, the teeth have transverse furrows, horizontal grooves, and punctate holes, a calcium defect affecting the enamel.

Besides the general metabolic disturbances affecting the teeth, we have to consider general developmental disturbances of an endocrine nature.

In hypothyroid states (cretinism) there is a history of delayed dentition and general lack of dental development; this manifestation is only a part of the general delay of mental and physical development.

In a hyperthyroid state there is a general acceleration of metabolism, which hastens the bony, muscular, genital, and mental development; or, as a part of the general picture of precocity, the permanent teeth come in early, are large in size, firm, hard and resistant to infection.

In hypopituitary states there is also a delayed eruption of teeth. Sometimes there is a lack of eruption of certain teeth, especially the lateral incisors as a result of the poor jaw development; or the teeth are malformed, crowded, and irregularly placed.

In hyperpituitarism (acromegaly) the teeth are widely spaced as a result of the rapid enlargement of the jaw.

The anterior pituitary gland secretes two chief hormones, which are

antagonistic to each other; the growth hormone and the sex hormone. The thymus and the pineal glands presumably hold the sex hormones in abeyance during the prepubertal stage; at or about puberty, both glands undergo involution, and maturity ensues.

When the thymus fails to undergo the normal involution, excessive growth of the body results, with a stunted genital development; the teeth are white; central incisors are large; lateral incisors are small or absent; the canines are not pointed or fang-like, but have a cutting edge, such as the incisors; generally, there is no uniformity in size or development of the teeth.

In premature thymic involution, there is a hastening of ossification and muscular and genital development, but the growth is arrested; the teeth come in early; they may be anomalous and out of alignment. Any of these malformations in the structure, shape and position of the teeth may be of nonendocrine origin.

Infectious diseases, general poor health, faulty diet, and poor personal hygiene and habits may simulate defects produced by endocrine disturbances.

A careful history, physical examination and correlation with other symptoms of metabolic and developmental nature will help in the differential diagnosis between endocrine and nonendocrine disorders of the teeth.

INFECTED SOCKETS

(Continued from page 185)

titration machine, he can prepare sodium chloride pellets about the size of BB shot.

7. To the uninitiated this treatment may seem extremely painful. On the contrary it is tolerable although uncomfortable at the first application. The relief that the treatment readily displays more than compensates for the discomfort. Within a half hour the pain will be markedly decreased and within a few hours entirely gone. This statement is also true of any swelling that may be

present. The treatment is renewed in twenty-four hours and again in the same time, if necessary, until the socket takes on a normal healthy appearance.

8. When the pain has entirely subsided, it is well to dispense with all dressings, although dry iodoform gauze may be lightly placed at the orifice of the socket, and the dressing continued for a day or two more if the location is not readily cleaned by mouth washing.

Hypertonic solutions are useful

only in the early stages of wound treatment. After that they tend to delay healing. It has been shown that they limit leukocytic emigration and thus bacterial phagocytosis.

After the necessary lymph douche has been stimulated and the bacteria overcome the leukocytes are necessary in determining the final disappearance of the bacteria. Thus the salt treatment is stopped as soon as the pain has ceased. It has accomplished its purpose and leaves the tissues capable of healing.

Newark Beth Israel Hospital.

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16 Murray Block.

THE PRELIMINARY EVALUATION OF A SOLUTION OF CEROUS-CERIC-CHROMATE IN THE TREATMENT OF VINCENT'S INFECTION AND OTHER ORAL DISEASES

DON C. LYONS, M.S., D.D.S., Ph.D. and OSCAR T. COFFELT, A.B.

Jackson, Michigan

THE treatment of Vincent's infection has always been attendant with many difficulties. The voluminous literature on this subject is filled with numerous treatments and many drugs or combinations of drugs are suggested. Those most commonly used are: trichloracetic acid, mercuric chloride, iodine, colloidal iodine, silver nitrate, metaphen, mercurochrome, brilliant green and crystal violet, bismuth, arsphenamine, solution of potassium arsenite, copper sulphate, (cupric) hydrogen dioxide, sodium perborate, potassium permanganate, chromic acid, potassium chlorate, and others too numerous to mention. The use of such a diversity of drugs in the treatment of a single disease suggests one of two things: either that the disease is amenable to almost any treatment, or that no thoroughly satisfactory treatment has yet been found; the latter, I believe, is the case. Vincent's infection is not easily amenable to treatment. This statement may be contradicted and disputed, but the fact remains that there is an ever-increasing number of chronic cases; furthermore, many cases which have been apparently successfully treated have the disagreeable and disconcerting habit of recurring.

TYPE OF TREATMENT

Two types of treatment have been generally used with an average degree of success; these are the use of oxidizing agents and of spirocheticides. The use of spirocheticides for the treatment of this disease is based on the presence of *Spirochaeta vincenti* or *Treponema vincenti*, and its generic relation to the *Spirochaeta pallida* which yields to treatment by arsphenamines. For this reason arsphenamines have enjoyed some popularity among physicians; but in general, dentists have not used the drug, principally because to be effective, it must be injected intravenously. Frequently general symptoms develop following the administration of this drug which are not pleasant. Again, as has been pointed out by Jameson,¹ Williams,² Sutton,³ and others, Vincent's infection may develop in the

mouth of syphilitic patients who are undergoing active treatment with arsphenamine or other spirocheticides, such as neoarsphenamine.

OXIDIZING AGENTS

Oxidizing agents are more generally used in the treatment of Vincent's infection than any other drug or types of drugs. Rosenthal,⁴ states that topical applications of oxygen liberating compounds inhibit the growth of anaerobic organisms. There are a number of oxygen liberating compounds in use today in dental practice; sodium perborate, hydrogen dioxide, potassium permanganate, and chromic acid are those most favored. Most of the oxygen liberating compounds now used fail to function with maximum results.

At this point, it might be well to make clear the distinction between oxygen liberating compounds and oxidizing compounds. Under certain conditions an oxygen liberating compound might be a strong reducing agent; therefore, not an oxidizing compound. It is, therefore, necessary to state the conditions under which such a chemical is used and also to signify the limitations of the compound used in order to arrive at a satisfactory conclusion as to its type of chemical action.

Hydrogen Dioxide—Hydrogen Dioxide is a strong reducing agent in the presence of either weak or strong acids. Its oxidizing properties exist only in neutral or alkaline solutions. When applied to oral tissues in the mouth having a hydrogen ion concentration which is slightly acid, any reaction would be other than oxidizing. Its property as a mechanical detergent is probably the only important one remaining.

¹ Jameson, R. E.: Vincent's Angina Developing During the Time Neoarsphenamine Was Being Administered to Two Known Cases of Leucitic Infection, J. Iowa Med. Soc. 15:264, 1925.

² Williams, G. S.: Vincent's Angina: A Case Occurring During Antisyphilitic Treatment, Arch. Dermat. & Syph. 20:322, 1929.

³ Sutton, I. C.: Vincent's Angina Occurring in a Patient under Treatment for Syphilis, J. A. M. A. 83:1919, 1924.

⁴ Rosenthal, L. S.: Vincent's Infection, Acute, Sub-Acute, and Chronic, J. A. D. A. 20:438 (March) 1933.

Perborates—Perborates are like hydrogen dioxide; they are reducing agents in acid solutions. They require an alkaline condition to react chemically as an oxidizing agent. The oxidation action of perborates in alkaline solution are classified as mild when compared with that of permanganate in a strong acid solution.

Potassium Permanganate—Potassium permanganate has been used with some success in the treatment of this disease, but in order to be really valuable as an oxidizer, it requires the presence of a strong acid, which is out of the question in oral treatment. It has many other objectionable features, least of them being the staining characteristics which have prevented its adoption as a popular antiseptic to use on the oral tissues. In solution it quickly deteriorates into the lower oxides of manganese; this affects its oxidizing action.

Mercuric Chloride, etc.—Mercuric chloride, copper sulphate, and potassium chloride are poor oxidizers; their strength as oxidizing agents are low unless they are placed in the presence of suitable catalysts.

Chromic Acid—Chromic acid is among the most powerful of the oxidizers. For that reason it is used by many in the treatment of Vincent's infection. It has however, a number of objectionable characteristics. As Byrnes,⁵ Wright,⁶ Thompson,⁷ and others have pointed out, chromic acid is a strong caustic and a powerful styptic. There are numerous reports in the literature of burns resulting from the application of from 1 per cent to 7 per cent solutions. For this reason Thompson⁷ advises the use of an alkaline neutralizing agent following the application of chromic acid in order to prevent injury to the tissue. Byrnes,⁵ points out that the application of chromic acid will in some measure cause necrosis of the surface tissue, which, in turn, is an excellent pabulum for the organisms.

⁵ Byrnes, R. R.: Vincent's Infection, D. Cosmos, 72:969 (September) 1930.

⁶ Wright, W. T.: Vincent's Infection, J. A. D. A. 17:1924 (July) 1930.

⁷ Thompson, A. J.: Vincent's Infection, J. A. D. A. 18:1405 (August) 1931.

Musburger,⁸ reports a similar result with trichloroacetic acid, as an acid that causes pain on application, penetrates deeply, and often causes scar formation.

The greatest objection to the use of chromic acid is a chemical one, and one that does not seem to be mentioned in the dental literature on Vincent's infection. Chromic acid in aqueous solution or in solid form is an unstable compound and soon partly decomposes to chromous acid, a strong reducing agent. The proportion of chromous acid in solution increases with age and exposure to light, so that in order to be sure of having a solution contain the minimum amount of chromous acid, fresh solution must be made each time it is to be used. Even the acid itself would also have to be made anew. Chromous acid being a reducing agent and having no oxidizing power, it is valueless in the treatment of this disease. The presence of chromous acid in the solution probably accounts for the poor results reported by some authors in using what they presumed to be chromic acid.

Cerium.—Cerium has been known as an element for a great many years. It was discovered by Berzelius in 1803. In the form of cerium oxalate [$Ce_2(C_2O_4)_3H_2O$] it has been used in medical science for many years as a sedative. Only recently in its higher valent form has the oxidizing power inherent in its various salts been recognized. Willard and Furman,⁹ in their new text on chemistry support this in detail as do Willard and Young,¹⁰ and Walden¹¹ Ceric salts are classed with the strongest oxidizing agents known. Ceric and cerous salts are not reactive to light; in other words, they are inert to the influence of light. It has been found that by combining the higher valent cerium with chromic acid, an oxidizing compound is formed. In solution

the ceric condition prevents the formation of chromous acid.

Cerous-Ceric-Chromate.—All the objectionable features of chromic acid are eliminated in cerous-ceric-chromate and the valuable properties of chromic acid are retained. Cerous-ceric-chromate is a chemical combination resulting from the combination of ceric oxides of high valency and 98.00 per cent purity with chromic acid at high temperatures. The ceric oxide combines partly as cerous chromate and partly as ceric chromate, apparently in equal percentages. The resulting chemical mixture of chromates is stable and as such retains the properties of chromic acid without the possibility of reduction to the chromous state. In other words, ceric oxide acts as a stabilizer to the chromic state of the acid and lends its oxidizing power to the resulting compound.

In aqueous solutions cerous-ceric-chromate provides its own acid medium and is chemically a strong oxidizing agent. As a means of combating both the chronic and acute forms of Vincent's infection this cerium compound has been found particularly efficient. This is especially true in the fusiform stage of the Vincent organism. The fusiform bacillus, as has been shown by various writers, is now considered as one stage of the spirochete, although this has not been completely accepted. As Tunicliff¹² states,

It is extremely pleomorphic in appearance in different media, forming straight and wavy nonmotile threads of varying length, the bacilli and filaments staining blue with Giemsa, and the bodies inside the organisms, bright pink. Under certain conditions these bodies appear to fall out of the threads and develop into mobile spirilla with from 1-10 curves and more frequently spirilla develop from the bodies in the interior of the cell and later emerge from the end of the thread or the filament breaks, leaving them free. The spirilla also degenerate into bacilli. The spirilla and bacillary cycles appear to be connected by a symplastic stage when a mass of bodies is formed as a result of changes in the organisms.

The fusiform stage has always been considered resistant to treatment, but it is apparently amenable to cerous-ceric-chromate.

⁸ Musburger, L. E.: Vincent's Infection: Practical Consideration for an Outline of Basic Medication. *DENTAL DIGEST*, 38:327 (September) 1932.

⁹ Willard and Furman: *Elementary Quantitative Analysis*, New York, D. Van Nostrand Company, 1933.

¹⁰ Willard and Young: *J. A. Chem. Soc.* 55:3260, 1933.

¹¹ Walden, Hammatt, and Chapman: *J. Am. Chem. Soc.* 55:2649, 1933.

1405 National Bank of Jackson.

¹² Tunicliff, Ruth: The Life Cycle of the *Bacillus Fusiformis*. *J. Infect. Dis.* 33:147, 1923.

REPORT OF CASES

CASE 1—A man, aged 46, complained of chronic Vincent's infection of four years' duration.

Examination—Microscopic examination of a smear made from débris taken from pockets about the teeth showed great numbers of the typical organisms associated with this disease. The gum tissue was inflamed and persistently painful. A slight yellowish-white exudate could be pressed from beneath the gum margins around a number of teeth.

Treatment—The mouth and teeth were first thoroughly cleaned. Cotton rolls were then packed around the teeth and a 6 per cent solution of cerous-ceric-chromate was applied. This was worked well down between the gum margins. The patient was advised to return at the end of forty-eight hours.

Second Microscopic Examination—A microscopic examination at that time showed almost an entire absence of the fusiform stage of the infecting organisms. Only a single fusiform organism could be found to a microscopic field whereas two days before, from twenty to fifty could be found in the same space. The spirochetal stage of the organism also showed some signs of diminishing at this time, but not in the same proportion.

Course—The treatment was repeated three times. An examination then showed that all spirochetes and fusiform organisms had been destroyed. Subsequent checks at intervals of one month for a period of four months have demonstrated no recurrence of the disease.

CASE 2—A man, aged 57, had a typical acute case of Vincent's infection.

Examination—Deep sloughs were present around the lower and upper anterior incisors. The entire mouth was affected, the gums were painful, swollen, and hyperemic, and there was a foul breath.

Treatment—The mouth and teeth were cleaned as well as possible during the first treatment without scaling. A 6 per cent solution of cerous-ceric-chromate was then applied in a way similar to that reported in Case 1.

Course—At the end of forty-eight hours all further sloughing had stopped and the gums were beginning to heal. At the end of seventy-two hours microscopic examination showed complete absence of the typical Vincent's organisms.

CONCLUSION

Cerous-ceric-chromate seems to offer a powerful oxidizing agent to the dental profession. It does not have a persistent stain. It is not disagreeable in taste, and it has no odor. Repeated clinical tests show that it is an efficient drug in the treatment of Vincent's infection; however, further clinical and bacteriologic tests are advised.

SURGICAL TREATMENT OF A DENTIGEROUS CYST

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THE surgery of a large cyst, such as is shown in the preoperative roentgenogram (Fig. 1) is not a difficult task from any point of view. The operator must be sure that he is not leaving in position any teeth, the roots of which are exposed to view when the cyst is enucleated. Roentgenograms of such conditions are frequently deceptive and may mislead one into thinking that the shadow thrown on the negative by the cyst definitely encroaches upon the tooth roots touching it in the roentgenogram.

Fig. 1 might easily be misinterpreted as requiring the loss of all the incisors. On operation, the incisors were not found to be visible within the cyst cavity.

TECHNIQUE

The technique of the operation consisted in (1) reflecting the mucoperiosteum from the cervical-gingival attachment; (2) opening into the labial cystic bone wall with a special spear drill, as shown in Fig. 2, and then (3) enlarging the opening by



Fig. 1—Preoperative roentgenogram of dentigerous cyst.

Fig. 2—Technique of opening into labial bone wall with drill.

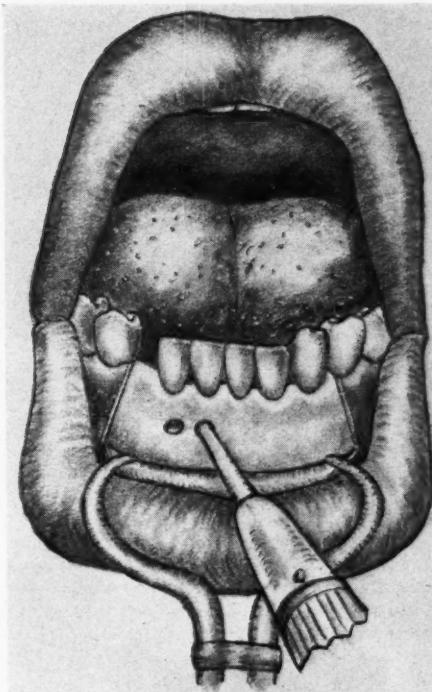
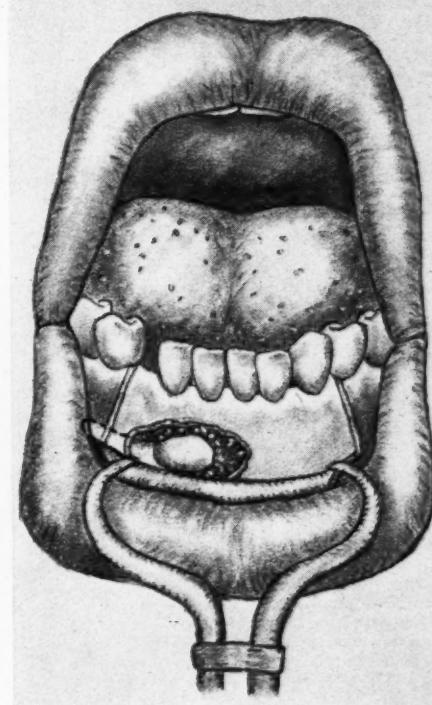


Fig. 3—Labial view of tooth in cyst following exposure of bony plate with drill and rongeur.



means of the bone rongeur, as shown in Fig. 3.

Fig. 4 is a postoperative view, after cyst and tooth removal.

In reattaching the mucoperiosteal flap, the sutures are passed between the incisors and ligated to them.

I rarely find it necessary to drain in these operations. Barring complications, which rarely occur, the immediate closure of such a cyst cavity is followed by uneventful recovery. Should the unexpected occur, it would not be necessary to reopen the flap, but to make a small incision in the soft tissue wall for irrigation and drainage.

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Fig. 4 — Postoperative roentgenogram with tooth and cyst removed; other teeth remain untouched.



ORTHODONTIC INTERVENTION PRIOR TO BRIDGEWORK

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The case to be reported required approximately three months' orthodontic treatment to position the teeth prior to making a bridge restoration that would be pleasing to the patient and gratifying to the dentist as to the results obtained. This is not difficult to accomplish; any dentist with a simple arch expanding appliance can obtain good results.

REPORT OF CASE

A woman, aged 26, had three pulpless teeth: the upper left central, lateral, and first bicuspid. Both right and left centrals were lingually inclined; the left lateral was badly discolored, protruded out of alinement labially, and had a large Class IV inlay.

Roentgenographic examination showed these pulpless teeth to be chronically infected. The removal of these teeth was advised. The problem, then, was to restore the mouth esthetically.

The mesio-distal width from cuspid to cuspid had to be increased to accommodate pontics of the same width as that of the retained right central and lateral; otherwise the bridgework would have had to duplicate the original appearance of the teeth with the protruding lateral; or else the central and lateral pontics would have had to be reduced in width to round out the arch. The centrals and laterals would then have been of different size.

The ideal restoration would necessitate the placing of the left central and lateral with the same size as the right central and lateral. This would ultim-



Model on left illustrates case before orthodontic treatment, with pulpless teeth in place. Model on right illustrates case after orthodontic treatment; bridge in place.

ately require the expansion of the arch from cuspid to cuspid. To accomplish this, orthodontic treatment was instituted. This treatment was undertaken before the extraction of the pulpless teeth.

Orthodontic Treatment—On August 28, bands were placed on the first permanent molars. A plain labial expansion arch was placed with ligations on the right and left cuspids and the right and left centrals, with the greatest amount of pressure on the two centrals. The patient was again seen and the arch adjusted on August 31, September 3, September 8, September 21, and September 29.

Bridgework—On October 3, an MOD inlay preparation was made on the upper left second bicuspid. On October 10, the left cuspid was prepared for bridge abutment. On October 24, a three-quarter crown preparation was made on the upper right central.

During the preparation of the teeth for bridge abutments, the labial arch was removed and readjusted after each sitting. The patient did not complain of any severe soreness or irritation during this treatment.

On October 31, the labial arch was removed; the bridge abutments were placed, and the impression was taken. A wax bite was made and a lower impression was then taken. After the impressions were made, the appliance was replaced and ligated to retain the teeth in place.

On November 7, the bridge was completed. On this day the teeth were extracted and the bridge with porcelain-tipped pontics was set with zinc oxide and eugenol. The bridge went to place with little effort. On subsequent days the sockets were treated, and the bridge was set permanently on November 21.

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